PICATINNY ARSENAL

NEW JERSEY

EPA ID# NJ3210020704

EPA REGION 2

CONGRESSIONAL DIST. 11

Morris County

Rockaway Township

Site Description

Picatinny Arsenal covers 6,491 acres in Morris County. The arsenal has been in operation for over 100 years, and it was a major source of ammunition in wartime. Currently, its primary mission is research, development, and pilot-plant production of explosives and propellants for the Army. At least 156 potentially hazardous locations exist on the site, according to a 1991 U.S. Army Corps of Engineers report. They include areas for testing rocket fuels, munitions, and propellants; areas where chemicals and shells were buried; surface impoundments; landfills; drum storage areas; and a sludge bed. The arsenal's 3,000 employees obtain their drinking water from two on-site wells which have been found to be contaminated with volatile-organic compounds (VOCs) and trace amounts of explosive compounds. Drinking water is treated on-site to remove VOCs and explosive compounds are at least an order of magnitude below health-advisory levels. The Army monitors this source of drinking water to ensure that treatment for VOCs has been effective and that explosive-compound levels remain low. The surrounding areas are suburban, as well as summer-vacation areas. Lake Denmark and Picatinny Lake, which are on base, are used for recreational activities.

Site Responsibility:

This site is being addressed through Federal actions.

NPL LISTING HISTORY

Proposed Date: 07/14/89

Final Date: 02/21/90

Threats and Contaminants

Monitoring wells and soils adjacent to unlined lagoons, which until 1981 held wastewater from metal plating and etching facilities, are contaminated with VOCs and heavy metals. Polychlorinated biphenyls (PCBs) and an organic pesticide were found in the sediments of the Green Pond Brook. In 1982, the brook was dredged, and the materials were piled nearby. Site studies have found metals, explosives, and trace amounts of dioxin in a defined area; access to that area has been restricted. The contaminated groundwater, soil, and sediments could pose a health hazard if accidentally ingested. Contaminated groundwater has apparently migrated off-site at the southern boundary where low levels of explosive compounds have been found in private wells. The Army extended a municipal water line to the residences with the contaminated private wells. In addition, a fishing advisory has been issued for pickerel and large-mouthed bass due to the level of mercury found in fish tissue from Picatinny Lake and G-2 Pond; located on the Arsenal.

Cleanup Approach

The site is being addressed in a phased long-term remediation. The 156 areas of concern (AOCs) have been divided into 3 phases to be studied in succession. Phase I generally encompasses the highest priority sites which are located at the southern portion of the Arsenal. 61 sites have undergone Resource Conservation and Recovery Act (RCRA) closure at Picatinny; (corrective actions will be split between RCRA and CERCLA). At these sites, the general approach is to cleanup soils under RCRA and groundwater under CERCLA. Additional soil cleanup will be done under CERCLA if RCRA cleanup is inadequate.

Response Action Status

Building 24 Area: In 1989, with agreement of the EPA and the State, the Army selected the following remedy for preventing VOC contaminated groundwater from charging into Green Pond Brook: (1) extraction of contaminated groundwater; (2) installation of a pre-treatment system for the removal of metals and solids; (3) air stripping to remove VOCs; (4) filtering to remove VOCs from the air stripper exhaust and additional VOCs from the air stripper effluent; (5) discharging treated water via a holding tank and piping it to Green Pond Brook; (6) operation and maintenance of the system; and (7) effluent monitoring. Construction of the groundwater remedy began in December 1990 and was completed November 1991. The pump and treat system was activated October 1992 and has been operating satisfactorily since that time. EPA's second 5-Year Report, completed in September 2001, concluded that the pump and treat system should be upgraded in order to more effectively capture contaminated groundwater. Several treatability studies have taken place to study the potential for remediating VOC-contaminated groundwater in-situ. One of the studies revealed that air sparging would not be an effective remedy due to site geography. A treatability study involving the injection of propane into the aquifer is currently taking place. The Army has submitted a ROD for the site in which the remedy selected is a passive treatment barrier (PTB) consisting of zero-valent iron to intercept and treat the VOC plume before it discharges to surface water. Installation of this PTB is expected to take place in 2004. Cleanup of soils associated with the Building 24 lagoon has been

addressed under RCRA.

Post Farm Landfill: From the 1940s to 1970s, the Post Farm Landfill received industrial wastes generated at Picatinny Arsenal. Drummed wastes included caustic paint stripper, used hydraulic oils, wastewater from oil reservoirs and tank cleaning wastes. Also disposed at the site was fly ash from coal burning operations and solid waste. A removal action was conducted in 1993 that removed drums and contaminated soil. A Soil cover 6 - 18 inches in thickness was placed over the excavated area and seeded. The Army subsequently investigated this area to determine the nature and extent of contamination in soil, groundwater, surface water, and sediment. The Proposed Plan for the Post Farm Landfill has been finalized and a public meeting was conducted on December 18, 2003. No major issues were raised. The preferred remedy is the existing soil cover over the excavated area and groundwater monitoring.

Pyrotechnic Testing Range/Sanitary Landfill: Land filling and staging activities occurred at the Pyrotechnic Testing Range/Sanitary Landfill, also known as Site 20/24, which resulted in surface soil being contaminated with PCBs. Groundwater in the area, referred to as Area B Groundwater, has been contaminated with VOCs. The ROD for the PCB-contaminated surface soils was signed June 2002 and remedial action, consisting of a vegetated soil cover, was completed in 2003. Contaminated groundwater at Site 20/24 is being addressed as a separate operable unit and the Proposed Plan was submitted May 2002. The preferred remedy is to treat VOC-contaminated groundwater in-situ with Hydrogen Release Compound.

Burning Ground Area: Explosively-contaminated sludge and sediment from manufacturing processes are sent to the Burning Grounds to be incinerated in metal pans (formerly on ground surface). The Army has investigated this area of the site to determine the nature and extent of contamination in soil, groundwater, surface water, and sediment. The Proposed Plan for the site has been finalized an a public meeting is scheduled for February 19, 2004. The preferred remedy is to cap contaminated oils with a proprietary asphalt pavement and monitor groundwater. A new incinerator to replace the Burning Ground operation has been constructed elsewhere on Picatinny Arsenal and is expected to come on line in 2004. Consequently, the Burning Grounds will be closed and the remedy will be able to be implemented without delay.

Green Pond and Bear Swamp Brooks: Green Pond Brook and Bear Swamp Brook are the primary surface transport bodies within Picatinny Arsenal. The Army investigated these water bodies and found that each has been impacted by Arsenal activities. These activities have led to the contamination of sediments, and to a lesser extent, surface water. The Proposed Plan for these brooks has been finalized and a public meeting was conducted on December 18, 2003. No major issues were raised. The preferred remedy is chemical and biological monitoring at various locations along the brooks as well as excavation, restoration, and environmental monitoring of a sedimentation basin and oil/water separator located on Bear Swamp

Building 95 Area: Two unlined sand filter lagoons received treated wastewater from a

metal-plating and etching operation in Building 95. The Army submitted a Feasibility Study for this operable unit in Fall 2000 and it is currently being finalized. Removal of contaminated soils and piping associated with the lagoons has been completed under RCRA.

Picatinny Lake and G-2 Pond: The results of the Phase II Remedial Investigation (RI) for Picatinny Lake and G-2 Pond revealed high levels of mercury in fish tissue. As a result, a fishing advisory has been issued for pickerel and large-mouthed bass in these two water bodies. The Phase II RI has been reviewed by EPA and the final remedy for Picatinny Lake and G-2 Pond will be analyzed in a Feasibility Study.

Remaining Areas: A RI Concept Plan was completed for 156 areas in 1991 including the previously mentioned areas. The plan prioritized areas for investigation and potential cleanup. To facilitate this process, these 156 areas have been broken into three phases. The Phase I RI Report has been approved and Phase I sites are proceeding to a Feasibility Study, Proposed Plan, or Record of Decision (ROD). The Phase II RI Report was has been approved and Feasibility Studies are expected to be submitted in 2004. The Phase III RI Report was submitted in stages and is in various levels of review/revision.

Site Facts: Picatinny Arsenal is participating in the Installation Restoration Program, a specially-funded program established by the Department of Defense (DoD) in 1978 to identify, investigate, and control the migration of hazardous contaminants at military and other DoD facilities. An Interagency Agreement was signed by the Army and the EPA in May 1991.

Environmental Progress

The pump and treat system for Building 24 groundwater has been operating successfully since 1992. The Army has proposed to replace the pump and treat system with a in-situ passive treatment barrier consisting of zero-valent iron to prevent contaminated groundwater from discharging to surface water. A vegetated soil cover has been completed over PCB-contaminated soil at the Pyrotechnic Testing Range/Sanitary Landfill. The Army has conducte dseveral removal actions at Picatinny Arsenal. A removal action has been carried out at the Post Farm Landfill to remove buried drums and contaminated soil. Off-site residents near the southern boundary, whose well water was found to be contaminated with explosives, have been provided with an alternative water supply. Picatinny Arsenal, as part of a removal action, extended a municipal water line to the affected residences. This was completed Spring 1996. The Proposed Plan for the Burning Grounds been finalized and a ROD is expected in 2004. The Army will discontinue open burning of its explosive wastes at Picatinny Arsenal when a newly constructed incinerator has been brought on line. Proposed Plans have also been finalized for the Post Farm Landfill, Area B Groundwater and the Green Pond and Bear Swamp Brooks. Phase I, II, and III RI/FSs are in progress, encompassing approximately 156 AOCs identified at Picatinny Arsenal. The Phase I RI report has been approved and several of the Phase I sites are proceeding to Feasibility Study, Proposed Plan or ROD. The Phase II RI Report has been approved by EPA. The Phase III RI Report was submitted Spring 2002 and is being revised. While further investigations leading to the selection of final remedies for the remaining contaminated areas are being conducted, the EPA has determined that there is no immediate danger to the nearby residents or the environment.